

## Revision of the *Lerista nichollsi* Complex (Lacertilia: Scincidae)

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### Abstract

The *Lerista nichollsi* complex, designated herein, is confined to the arid and semi-arid mid-west and lower north-west of Western Australia. It comprises *L. connivens* Storr, *L. nichollsi petersoni* Storr, *L. nichollsi nichollsi* (Loveridge), *L. uniduo* sp. nov. and *L. onsloviana* sp. nov. and possibly two more taxa.

### Introduction

Within the *Lerista bipes* species-group (Storr 1972) there is a cluster of very similar species distinguishable from all others by their possession of prefrontals and a forelimb groove. This cluster of species is herein designated the *Lerista nichollsi* complex. At first (Storr 1972) it was believed to consist only of *L. nichollsi* (mainly in the interior) and *L. connivens* (mainly on the coast). Later (Storr 1976) *L. petersoni* was added to the complex, as a subspecies of *L. connivens*.

In the last seven years, thanks to grants from Mr and Mrs W.H. Butler, the Museum has been able to undertake several herpetofaunal surveys in the vicinity of the mid-west, upper west and lower north-west coasts of Western Australia. During these surveys good numbers of the complex were collected. Identifying specimens of *Lerista connivens* posed no difficulty, but allotting the remainder to either 'nichollsi' or 'petersoni' was increasingly unsatisfactory, which has necessitated a revision of the complex.

The principal characters used in discriminating between the species are (1) nature of eyelid (movable in one species, normally immovable in the others); (2) size; (3) habit (one species is as slender as *Lerista bipes*, the rest are noticeably stouter); (4) number of supraciliaries (basically 4, but with fusion of first and/or second to a supraocular they may be reduced to 0 + 2 or 1 + 2); (5) state of second loreal (fused to prefrontal or free); and (6) nature of vertebral stripe (either narrow and enclosing two series of dark spots or wide and enclosing four series of dark spots).

This paper is based solely on specimens in the Western Australian Museum (R suffix omitted from registration numbers), except for the holotype of *Lerista nichollsi*, kindly loaned by the Museum of Comparative Zoology, Harvard.

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Systematics

Key to Species and Subspecies

- 1 Eyelid movable; supraciliaries normally 4 in continuous series; midbody scale rows commonly (70%) more than 20; vertebral stripe enclosing 2 series of small dark spots . . . . . *connivens*  
 Eyelid immovable (except rarely in *onsloviana*); supraciliaries 1-4, interrupted or in continuous series; midbody scale rows rarely more than 20; vertebral stripe enclosing 2 or 4 series of small dark spots . . . . . 2
- 2 Supraciliaries 4, in continuous series; second loreal seldom fused to prefrontal . . . . . 3  
 Supraciliaries fewer than 4, owing to fusion of first and/or second to first supraocular; second loreal always or commonly (60%) fused to prefrontal . . . . . 4
- 3 Vertebral stripe enclosing 4 series of small dark spots . . . . . *nichollsi petersoni*  
 Vertebral stripe enclosing 2 series of small dark spots . . . . . *nichollsi nichollsi*
- 4 Small (SVL of adults less than 60 mm); body slender; supraciliaries usually 1 + 2 (occasionally 1 + 1, 1 + 3 or 0 + 2); second loreal commonly (40%) free . . . . . *uniduo*  
 Moderately large (SVL of adults commonly more than 60 mm); body relatively stout; supraciliaries 0 + 2; second loreal fused to prefrontal . . . . . *onsloviana*

*Lerista connivens* Storr, 1972

*Lerista connivens* Storr 1972, J. Proc. R. Soc. West. Aust. 54: 68. Salutation I., W.A.

Diagnosis

A large member of the complex, distinguishable from all others (except occasional specimens of *onsloviana*) by its movable eyelid. It also has more midbody scale rows and fewer nuchals than other species.

Description

Snout-vent length (mm): 33-85 (N 77, mean 63.4). Tail (%SVL): 60-96 (N 36, mean 81.3).

Nasals in short to long contact (N 74) or just touching (2). Supraoculars 3 with first two in contact with frontal (N 75) or 2 with one (2). Supraciliaries 4 (N 75) with first much wider than high and last smallest, or 1 + 2 (1) or 0 + 2 (1). Loreals 2 (N 76) or 1 (1) when second fused to prefrontal. Presuboculars 2 (N 76) or 1 (1). Upper labials 6 (N 76) or 5 (1) when second and third fused to each other.

Nuchals 0 (N 2), 1 (26), 2 (46) or 3 (2). Midbody scale rows 20 (N 24), 21 (4), 22 (47) or 24 (2). Lamellae under longer toe 9-14 (N 76, mean 11.0).

Dorsally brownish-white or greyish-white with a wide vertebral stripe composed of two series of angular, dark brown spots of irregular shape and with longer axis transverse, the space between spots pale to very pale brown; vertebral stripe dilating as it extends forward over head to tip of snout. Wide, dark brown, upper lateral stripe extending narrowly forwards through lore to tip of snout. Upper labials whitish edged with dark brown, margins widest anteriorly. Lower surfaces whitish.

### Distribution

Mid-west coast and coastal plains of Western Australia, from Gnoraloo and Mia Mia south to the Murchison and inland to Cooralya, Woodleigh and Nerren Nerren, including several islands in Freycinet Estuary. See Figure 1.

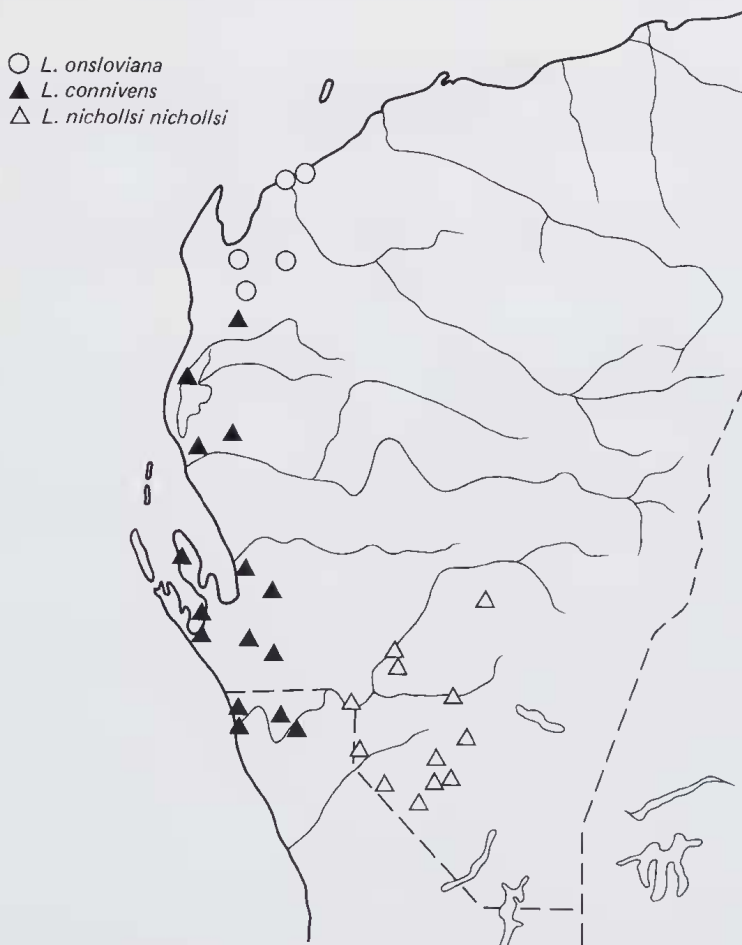


Figure 1 Map of north-western and mid-western Western Australia showing location of specimens of *Lerista onsloviana*, *L. connivens* and *L. nichollsi nichollsi*.

## Material

### *North-West Division (W.A.)*

12 km NW Mia Mia (81833); 18 km E Gnaraloo (76753) and 9 km SE (76713-5, 76870); 27 km SE Cooralya (71394-5); 8 km SSE Boolathana (71336-7); 21 km NNE Carnarvon (71100); 18 km N Yaringa (71128); Denham (81340-1) and 6 km NE (81383) and 2 km N (71090); Woodleigh (57384); Freycinet I. (25811); middle Mary Anne I. (25762-4); south Mary Anne I. (25759-61); Salutation I. (25776-7); Three Bays I. (25750-2); 16 km S Hamelin (76836); 1 km S Tamala (54499-508, 54734, 64404); Coburn (64394); and 17 km NW (63321-2); Wannoo (71068-72) and 6-7 km NNW (64329-32, 64336, 64381, 71132-5) and 6 km S (64312); 17 km SW Nerren Nerren (64317, 64320, 64418) and 31 km SW (64341) and 30 km SE (60630, 60646).

### *South-West Division (W.A.)*

46 km N Galena (59004, 59017) and 30 km NE (73863-5); 10 km N Murchison House (64411); Kalbarri (34317, 40286, 41731, 43857).

## *Lerista nichollsi petersoni* Storr, 1976

*Lerista connivens petersoni* Storr 1976, Rec. West. Aust. Mus. 4: 253. Yinnietharra, W.A.

## Diagnosis

A medium-sized member of the complex with immovable eyelids, 4 supraciliaries and 4 dorsal lines of small dark spots.

## Description

Snout-vent length (mm): 31-71 mm (N 23, mean 54.7). Tail (% SVL): 79-109 (N 5, mean 88.0).

Nasals in short to long contact. Supraoculars 3 with first two in contact with frontal, except in one specimen (2 with one). Supraeyelidaries 4, last much the smallest. Loreals 2 (22) or 1 (1) when second fused to prefrontal. Presuboculars 2. Upper labials 6. Nuchals 2 (N 21) or 3 (2). Midbody scale rows 18 (N 1), 20 (18) or 22 (1). Lamellae under longer toe 9-12 (N 18, mean 11.0).

Dorsally brownish-white with a very wide vertebral stripe composed of four series of small, angular, dark brown spots, the space between them brown to dark brown. Head brown, shields partly edged with dark brown. Wide, dark brown upper lateral stripe extending narrowly forwards through lore to nasal. Upper labials whitish edged with brown, margins darkest and widest anteriorly. Lower surfaces whitish (yellow in life).

## Distribution

Upper west and mid-west coasts and adjacent interior of Western Australia, from Barradale south to Kalbarri and nearly to Yuna, and inland to Mt Augustus. See Figure 2.



Figure 2 Map of north-western and mid-western Western Australia showing location of specimens of *Lerista uniduo* and *L. nichollsi petersoni*.

### Remarks

A specimen (74947) from Bullara, north-west of the range of *L. nichollsi petersoni*, agrees with that taxon in having immovable eyelids and four supra-ciliaries but differs in having no stripes. It possibly represents another species or subspecies.

### Material

#### *North-West Division (W.A.)*

17 km NE Barradale (80251) and 1.5 km W (84187) and 2 km S (80155-7); 10 km N Winning (81828-9); 10 km W Manberry (76842); 6 km SSE Mangaroon (84185-6); Mt Augustus (84087); Yinnietharra (46197, 51378); Denham (81371); 15 km NW Cooloomia (66372) and 14 km W (69543) and 18 km SW (69557) and 23 km SW (66357).

#### *South-West Division (W.A.)*

Gee Gie Outcamp (34046); Kalbarri (37640-1); 40 km NE Yuna (57528).

*Lerista nichollsi nichollsi* (Loveridge, 1933)

*Rhodona nichollsi* Loveridge 1933, Occ. Pap. Boston Soc. nat. Hist. 8: 97. Dalgaranga, W.A.

**Diagnosis**

A medium-sized member of the complex with immovable eyelids, 4 supraciliaries and two dorsal lines of small dark spots.

**Description**

Snout-vent length (mm): 41-68 (N 36, mean 56.4). Tail (% SVL): 69-101 (N 17, mean 90.9).

Nasals in short to long contact. Supraoculars 3, first two in contact with frontal. Supraciliaries 4, last much the smallest (except in one specimen, which has a small additional scale between first and second). Loreals 2 (N 32) or 1 (2) when second fused to prefrontal. Presuboculars 2 (34) or 1 (1). Upper labials normally 6 (in one specimen first and second fused; in another fifth and sixth fused). Nuchals 2 (N 25) or 3 (11). Midbody scale rows 18 (1), 20 (31) or 22 (3). Lamellae under longer toe 9-14 (N 33, mean 11.8).

Dorsally brownish-white with a narrow vertebral stripe composed of two series of short dark brown dashes, the space between them pale to moderately dark brown. Head brown, shields with or without a fine dark brown margin. Wide, dark brown upper lateral stripe extending narrowly forwards through lore to



Figure 3 A *Lerista nichollsi nichollsi* from Yalgoo, photographed by G. Harold.

nasal. Upper lips whitish, posterior margin of labials dark brown. Lower surfaces whitish.

### Distribution

Mid-western interior of Western Australia from Mileura south-west to Gullewa. See Figure 1.

### Material

*North-West Division (W.A.)*

Mileura (13477, 15808); Meeberrie (51096); Wooleen (4455); Meka (29272); Dalgaranga (holotype, MCZ 33252); 10 km NE Pindathuna (83803-4, 83807); Yallalong (1262); Wandina (9058); Talling (54208); Yalgoo (83176-81) and 10 km E (75746); 8 km N Gullewa (83783-99).

### *Lerista uniduo* sp. nov.

### Holotype

R71407 in Western Australian Museum, collected by G. Harold and C.D. Winton on 23 October 1980 at 8 km SSE of Boolathana, Western Australia, in 24°43'S, 113°43'E.

### Paratypes

For details of 81 specimens see Material.

### Diagnosis

A small slender member of the complex with immovable eyelids, usually 3 supraciliaries (the first and second separated by first supraocular) and usually 2 dorsal series of small dark spots. Further distinguishable from *L. nichollsi peter-soni* by much higher frequency of second loreal fused to prefrontal.

### Description

Snout-vent length (mm): 29-59 (N 82, mean 48.6). Tail (% SVL): 75-102 (N 31, mean 86.7).

Nasals usually in short to moderately long contact, occasionally just touching or very narrowly separated. Supraoculars 3 with first two in contact with frontal. Supraciliaries 1 + 2 (N 72), 1 + 1 (6), 1 + 3 (2) or 0 + 2 (2), last much the smallest and sometimes fused to third supraocular. Loreals 2 (N 34) or 1 (48) when second fused to prefrontal. Presuboculars 2 (N 76), 1 (5) or 3 (1). Upper labials 6. Nuchals 1-3 (N 80, mean 2.3). Midbody scale rows 18 (N 6), 19 (3) or 20 (69). Lamellae under fourth toe 9-14 (N 79, mean 10.9).

Dorsally brownish-white or greyish-white with a narrow to moderately wide, pale to moderately dark brown vertebral stripe enclosing 2 (N 71) or 4 (9) series of small, angular, dark brown spots. Head brown, shields often edged, spotted or smudged with dark brown. Wide dark brown upper lateral stripe extending forwards to temple, thence often narrowly and interruptedly to lore. Anterior

and central upper labials edged with dark brown. Lower surfaces whitish (yellow in life).

### Distribution

Mid-west coast and hinterland between lat. 22° and 27°S, and inland to Giralia, Binthalya and Mt Narryer. See Figure 2.

### Remarks

I tentatively exclude from this taxon three specimens (55971, 55975-6) from 16 km south of Gascoyne Junction; the first is large (SVL 67 mm) and relatively stout and has unusually dark and solid stripes.

### Derivation of Name

From Latin *unus* (one) + *duo* (two), in allusion to the supraciliary formula.

### Material

#### *North-West Division (W.A.)*

Yardie Creek watercourse (61398) and 4 km N (61204); 3 km E Giralia (61399); 17 km E Cardabia (63681); 18 km E Gnaraloo (76749) and 9 km SE (76872-4) and 11 km SSE (81703); Boologooro (31274) and 23 km S (16950); 8 km W Cooralya (76869) and 27 km E (71385); 3 km NW Mardathuna (71352) and 16 km SE (71377-8, 71382); 15 km WNW Binthalya (71603, 71667); 8 km SSE Boolathana (71339-41, 71392-3, 71396-406); 21 km NNE Carnarvon (71101) and 16 km E (41208) and 48 km E (71525-6); 9 km SE Doorawarrah (71598); Callagiddy (37648, 39767, 40667-8); 59 km SSE Carnarvon (55046-7); Wooramel (18198, 19932, 54712) and 32 km NW (81766) and 16 km N (55202) and 12 km N (55187-8); Denham (74946); Woodleigh (48008-9, 49932-6, 57385-7); Hamelin (54879-80, 56482-3) and 7 km W (54865-7) and 15 km E (54764); Overlander (44528a); Wannoo (71067, 71099, 71127) and 7 km N (64379-80); 2 km S Mt Narryer (61301); 7 km W Mungawolagudi Claypan (60647) and 6 km NE (60622).

### *Lerista onsloviana* sp. nov.

#### Holotype

R81073 in Western Australian Museum, collected by G. Harold and C. Winton on 20 August 1981 at Old Onslow, Western Australia, in 21°43'S, 114°57'E.

#### Paratypes

##### *North-West Division (W.A.)*

2 km SW (new) Onslow (80316) and 1 km W (84209-15, 84292-7); Old Onslow (81074-5); 3 km E Giralia (61156-7); 9 km NW Barradale (80193-4, 80240-5); Marrilla (63701).

#### Diagnosis

A medium-sized member of the complex with usually immovable cyclids, usually 2 supraciliaries (the first and second fused to first supraocular), second lorcal fused to prefrontal, and relatively narrow vertebral stripe (enclosing 2 series of dark spots).



## Description

Snout-vent length (mm): 39-70 (N 28, mean 55.0). Tail (% SVL): 72-86 (N 12, mean 79.3). Eyelids immovable (N 27) or movable (1).

Nasals usually in short to moderately long contact, occasionally just touching or very narrowly separated. Supraoculars 3 with first two in contact with frontal (4 with 3 on one side of one specimen). Supraciliaries 0 + 2 (N 26), 1 + 2 (1) or 0 + 1 (1). Loreal 1. Presuboculars 2 (26) or 3 (2). Upper labials 6. Nuchals 1 (N 1), 2 (14) or 3 (13). Midbody scale rows 20. Lamellae under longer toe 10-15 (N 28, mean 11.6).

Dorsally brownish-white with a narrow, usually sharply defined, vertebral stripe composed of two series of small, angular dark brown spots or short dashes, the space between them brown or pale brown. Top of head pale brown, shields partly edged with brown. Dark brown upper lateral stripe relatively narrow and extending through lore to nasal, lower edge ragged and tending to break up into a series of spots. Upper labials edged with dark brown, margins darkest and widest anteriorly. Lower surfaces whitish.

## Distribution

North-west coastal plains of Western Australia, from Onslow south to Giralalia and Barradale. See Figure 1.

## Derivation of Name

After the type locality, (old) Onslow.

## Discussion

This complex has posed difficulties, not because its members are unusually variable, but because of the small morphological gap between the species. In identifying specimens it is therefore necessary to consider simultaneously most of the six characters listed in the Introduction.

Further collecting is required for ascertaining the taxonomic status of the specimens from Bullara and Gascoyne Junction, mentioned under *L. nichollsi petersoni* and *L. uniduo* respectively.

As a result of this revision, certain faunal lists must be amended. In the Shark Bay list (Storr and Harold 1978) and Zuytdorp list (Storr and Harold 1980), the accounts of 'nichollsi' are based on both *L. uniduo* and *L. nichollsi petersoni*. In the Exmouth list (Storr and Hanlon 1980) the account of 'nichollsi' is based on both *L. uniduo* and *L. onsloviana*.

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